Contr. Univ. Mich. Herb. 16:49–53. 1987.

TWO NEW SPECIES OF STIGMAPHYLLON (MALPIGHIACEAE) FROM SOUTH AMERICA

Christiane Anderson
University of Michigan Herbarium
North University Building
Ann Arbor, Michigan 48109

Stigmaphyllon (Malpighiaceae) is a large genus of Neotropical, yellow-flowered vines with usually long-petioled, cordate leaves. In most species the stamens are heteromorphic, the styles bear apical flaps of tissue (the folioles for which the genus is named), and the samara has a large dorsal wing. The most recent treatment of the genus was published by Niedenzu in 1928, who saw rather little material, often in poor condition, from western and central South America. Recent collections, especially from Peru, include a number of new species, and also allow for a better understanding of variation in species already named and for their refined circumscription. Some older specimens, assigned various names, proved to be representatives of undescribed species. Two of these new species, one from Peru and one from Bolivia, are described here.

Stigmaphyllon tarapotense C. Anderson, sp. nov.—TYPE: PERU. San Martín: rd between Tarapoto and Juanjui, 21 km SE of Puente Colombia and 4.7 km SE of Juan Guerra, 30 Jun 1984, *Murray & Johnson 1530* (holotype: MICH).

Liana. Laminae 6.2–16 cm longae, 6.5–18 cm latae, ovatae vel reniformes vel orbiculares, supra glabrae, subtus dense argenteo-tomentosae, margine egandulosae vel interdum glandulosae. Inflorescentia thyrsiformis constata ex umbellis, floribus in quaque umbella ca 15–30. Pedunculi 5.5–9.5 mm longi; pedicelli 5.5–9 mm longi. Bracteae 1.4–2.8 mm longae, triangulares; bracteolae 1.5–2.2 mm longae, triangulares, eglandulosae. Petala orbicularia; petala lateralia marginibus erosis, petalum posticum margine eroso-denticulato vel eroso-fimbriato. Stamina heteromorpha; antherae omnes fertiles, pubescentes. Stylus anticus 2.8–3.5 mm longus, apice 1.1–1.3 mm longo, lineari, unco ca 0.2 mm longo, foliolis absentibus; styli postici 3.7–4.7 mm longi, lyrati, apice 0.7–1.1 mm longo, foliolo variabili, 0.2–0.8 mm longo, 0.4–0.8 mm lato, parabolico vel oblongo vel ligulato, labio interdum tantum laterali. Samara ala dorsali 3.3–4.5 cm longa.

Vine. Stems and inflorescence axes densely sericeous, glabrate in age. Laminas 6.2–16 cm long, 6.5–18 cm wide, ovate to reniform or orbicular, apex mucronate, base cordate to subtruncate or in large leaves auriculate, glabrous above, densely silvery tomentose below, margin eglandular or occasionally with scattered sessile glands, basal glands prominent, sessile, each gland 1.8–3.2 mm in diameter; petioles 2–11.5 cm long; stipules triangular or broadly so, eglandular. Flowers ca 15–30 per umbel, these borne in thyrses. Peduncles 5.5–9.5 mm long, pedicels 5.5–9 mm long, terete, peduncles ⅔–¾ times as long as or subequal or equal to pedicels; bracts 1.4–2.8 mm long, triangular or narrowly so, bracteoles 1.5–2.2 mm long, triangular, eglandular. Claw of anterior-lateral petals 1.8–2 mm long,

limb 10.5–11 mm long and wide, claw of posterior-lateral petals ca 1 mm long, limb ca 8.5 mm long and wide, all limbs orbicular, margin erose; claw of posterior petal 2.5–3 mm long, limb ca 7–8 mm long and wide, orbicular, margin erose-denticulate or erose-fimbriate, teeth and fimbriae up to 0.2 mm long. Stamens unequal, those opposite the posterior styles the largest, those opposite the anterior-lateral sepals (sometimes also those opposite the posterior-lateral sepals) with the connective enlarged and the locules somewhat reduced and unequal; anthers pubescent. Anterior style 2.8–3.5 mm long, shorter than the posterior two, glabrous or with a few scattered hairs near the base; apex 1.1–1.3 mm long including a spur ca 0.2 mm long, linear, folioles absent. Posterior styles 3.7–4.7 mm long, glabrous, lyrate; apex 0.7–1.1 mm long, folioles variable, 0.2–0.8 mm long, 0.4–0.8 mm wide, parabolic, oblong, or ligulate, or reduced to a narrow lip. Dorsal wing of samara 3.3–4.5 cm long, 1.5–2 cm wide; nut with 2–4 lateral winglets per side, usually in 2 rows; mature embryo not seen. Fig. 1.

Additional Specimens Examined. Peru. San Martín: Dist. San Martín, valley of San Martín, 8 km E of Tarapoto, Fundo de San Isidro near Codo Creek, ca 1000 ft, 15 Aug 1937, *Belshaw 3239* (F, GH, MICH, MO, NY, U, UTD, WIS); 6 km S of Tarapoto, on rd to Juanjui, 310 m, 18 Jul 1982, *Gentry et al. 37688* (MICH, MO).

Stigmaphyllon tarapotense is known only from three collections from the vicinity of Tarapoto in Peru. It is notable for the very dense, silvery tomentose pubescence of the lower leaf surfaces. The posterior styles are unusual in that the folioles vary in size and shape in the same umbel and even in the same flower; sometimes the folioles are reduced to a lateral lip. The anterior style is efoliolate. The only other species in Peru with such densely pubescent, silvery leaves is *S. maynense* Huber, which may be readily distinguished by the structure of the androecium and gynoecium. In *S. maynense,* the posterior styles and their opposing stamens are shorter than the anterior style and its stamen; all styles are foliolate, and the anthers are glabrous. In *S. tarapotense,* as in most species, the posterior styles and associated stamens exceed the anterior ones; the anthers are pubescent. Also, the peduncles of *S. maynense* are very short (1–5 mm), while those of *S. tarapotense* are 5.5–9.5 mm long.

Stigmaphyllon yungasense C. Anderson, sp. nov.—Type: Bolivia. Depto La Paz, *Bang 2296* (holotype: NY; isotypes: F, GH, MICH, MO, NY, W).

Liana. Laminae 10–15 cm longae, 7–11 cm latae, triangulares vel cordatae, supra glabrae, subtus tomentosae, margine eglandulosae. Inflorescentia dichasialis vel thyrsiformis constata ex umbellis vel umbella solitaria, floribus in quaque umbella ca (20–) 25–30. Pedunculi 8.5–18 mm longi; pedicelli 5.5–12 mm longi. Bracteae 1.6–2.5 mm longae, triangulares; bracteolae 1.4–1.9 mm longae, oblongae, eglandulosae. Petala orbicularia vel late obovata, marginibus fimbriatis. Stamina heteromorpha; antherae omnes fertiles, glabrae. Stylus anticus ca 3 mm longus, apice ca 1.3 mm longo, triangulari, obtuso, foliolis absentibus; styli postici ca 3 mm longi, apice ca 1.1 mm longo, unco ca 0.2 mm longo, foliolis absentibus. Samara ala dorsali ca 4.5 cm longa, ca 1.5 cm lata.

Vine. Stems and inflorescence axes with T-shaped hairs when young, glabrous in age. Laminas 10–15 cm long, 7–11 cm wide, triangular to cordate, apex mucronate, base cordate, glabrous above, tomentose below, margin eglandular, basal

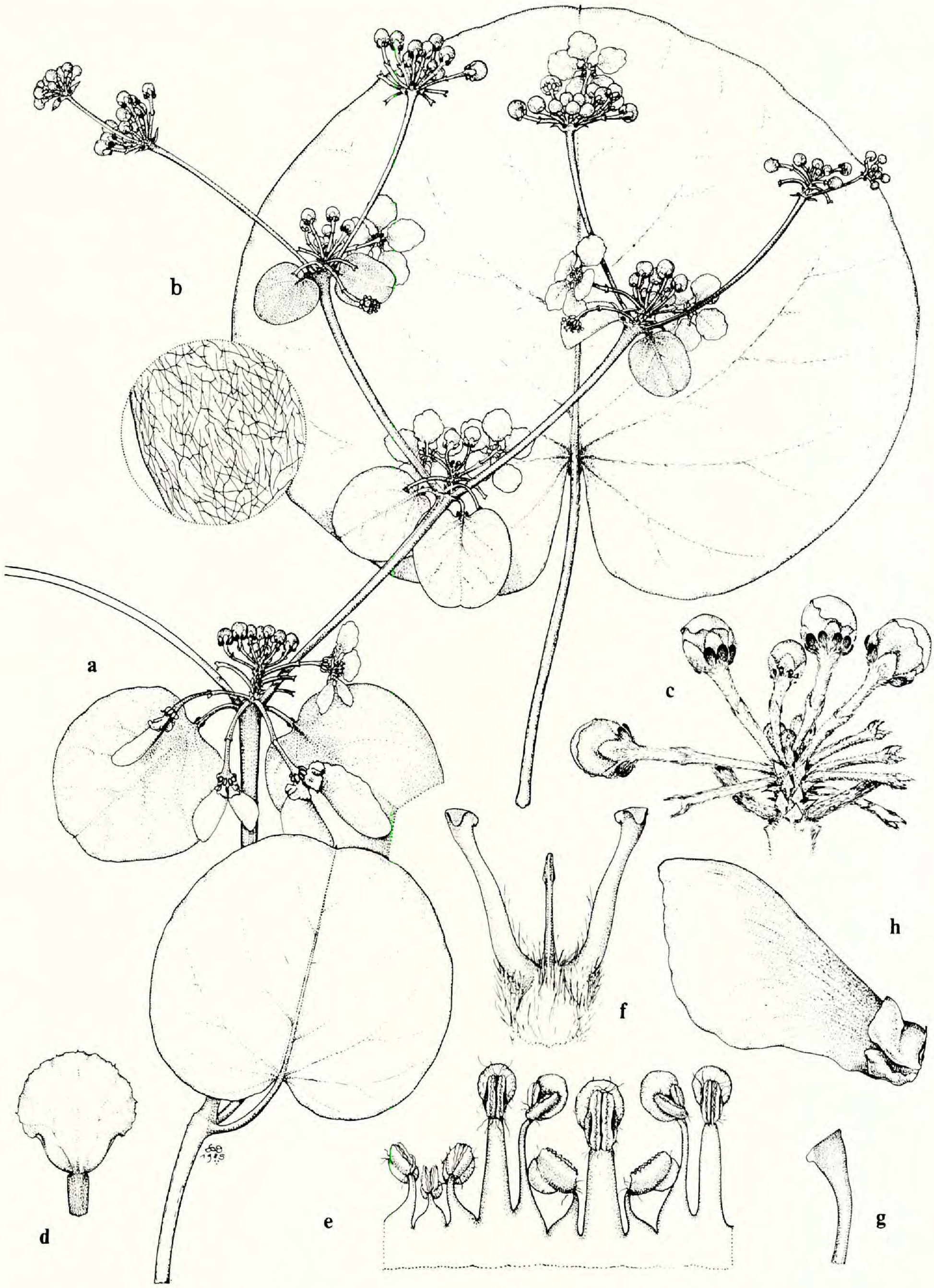

FIG. 1. *Stigmaphyllon tarapotense*. a. Flowering branch (×0.5). b. Large leaf (×0.5); detail of lower leaf surface (×5). c. Umbel (×1.5). d. Posterior petal (×2). e. Androecium (×5). f. Gynoecium (×5). g. Lateral view of anterior style (×5). h. Samara (×1). (Based on *Murray & Johnson 1530*).

glands prominent, sessile, each gland 1.5–2.1 mm in diameter; petioles 2.8–5.2 cm long; stipules triangular, eglandular. Flowers ca (20–) 25–30 per umbel, these borne in dichasia or small thyrses or solitary. Peduncles 8.5–18 mm long, pedicels 5.5–12 mm long, terete, peduncles 1–1.8 times as long as pedicels; bracts 1.6–2.5

mm long, triangular, bracteoles 1.4–1.9 mm long, oblong, eglandular. Claw of anterior-lateral petals ca 2 mm long, limb ca 11–11.5 mm long and wide, claw of posterior-lateral petals ca 1 mm long, limb ca 10 mm long and wide, claw of posterior petal ca 3 mm long, limb ca 8.5 mm long and wide, all limbs orbicular or broadly obovate, margin with fimbriae up to 0.5 (–0.6) mm long. Stamens unequal in size, those opposite the anterior-lateral sepals with the longest filaments; anthers all fertile, glabrous, none with the locules reduced. Anterior style ca 3 mm long, equal or subequal to the posterior two, glabrous; apex ca 1.3 mm long, triangular, obtuse, folioles absent. Posterior styles ca 3 mm long, glabrous, erect to recurved; apex ca 1.1 mm long including a spur ca 0.2 mm long, somewhat incurved, folioles absent. Dorsal wing of samara ca 4.5 cm long, ca 1.5 cm wide; nut with 1–3 lateral winglets per side; mature embryo not seen. Fig. 2.

ADDITIONAL SPECIMENS EXAMINED. BOLIVIA. Depto La Paz, Nor. Yungas, arriba de Puente Villa, Tarila Alto, 1850 m, bosque natural fragmentario en depresión de ladera, 8 Mar 1979 (sterile), *Beck 390* (MICH, MO), 22 Sep 1979 (flowers, young fruits), *Beck 2251 p.p.* (MICH).

This distinctive species is known only from three collections from the Yungas region of Bolivia. In most members of *Stigmaphyllon,* the posterior styles and their opposing stamens are larger than the anterior style and its opposing stamen; in a few species they are smaller. *Stigmaphyllon yungasense* is unusual in that its efoliolate styles are equal (or subequal) in size. The stoutest filaments with the largest anthers are those opposing the styles, but the stamens opposite the ante-

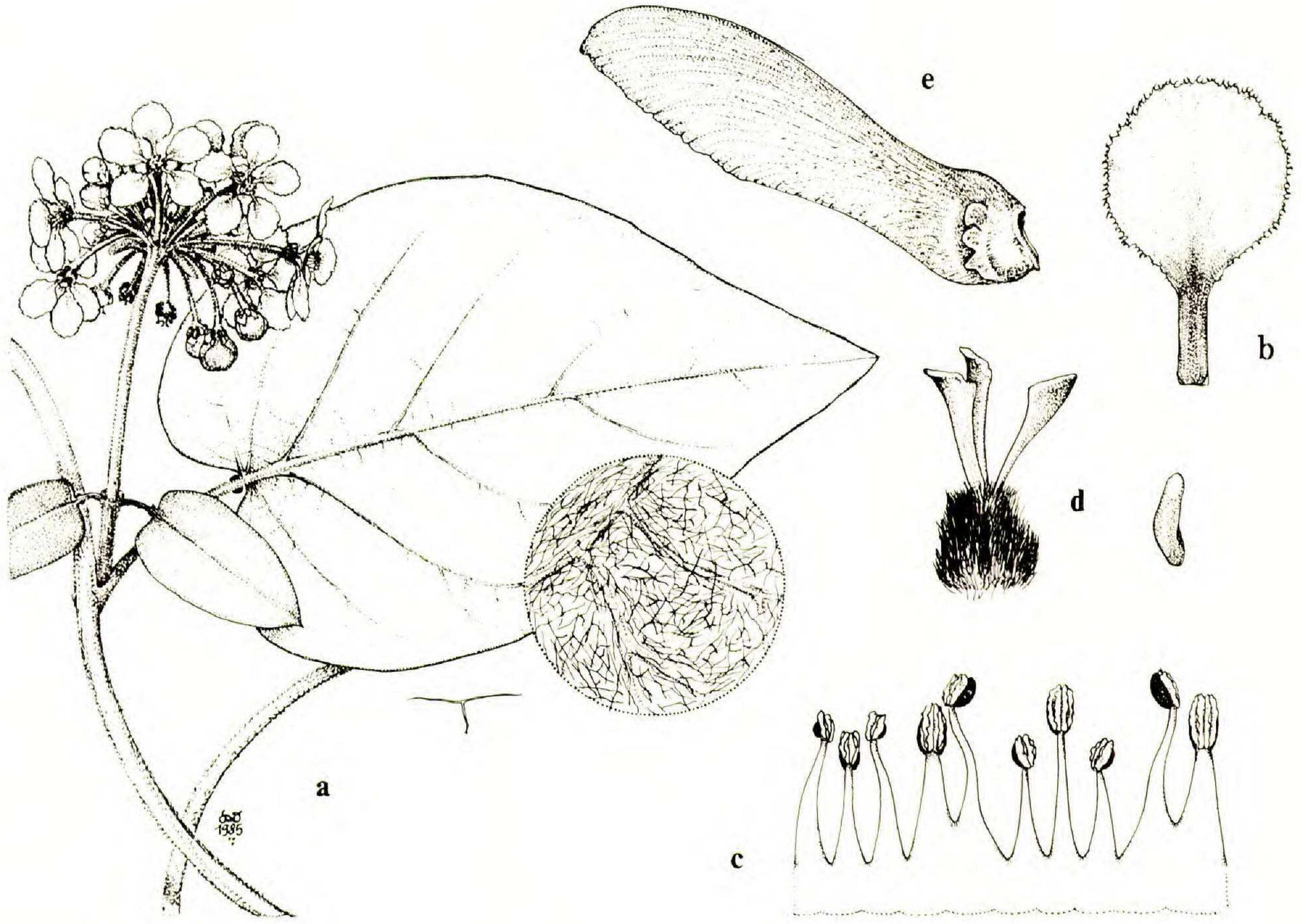

FIG. 2. *Stigmaphyllon yungasense.* a. Flowering branch (×0.5); detail of lower leaf surface (×5); single hair (×10). b. Posterior petal (×2.5). c. Androecium (×5). d. Gynoecium (×5); posterior style seen from above (×10). e. Samara (×1). (a–d based on *Bang 2296;* e based on *Beck 2251.*)

rior-lateral sepals have the longest filaments. The anthers are glabrous; none have the connective enlarged and the locules reduced or absent, a common condition in the stamens opposite the lateral sepals of other species. The only samaras seen were part of a mixed collection, *Beck 2251*. Of the two sheets at MICH, one consists of a few flowers and young to almost mature fruits of *S. yungasense,* the other of mature fruits of *Banisteriopsis muricata* (Cav.) Cuatr.

The earliest collection of *S. yungasense, Bang 2296,* was assigned to *S. bogotense* Tr. & Pl., an upland species of Colombia and adjacent Venezuela to central Peru but not recorded from Bolivia. *Stigmaphyllon bogotense* is similar in that its styles are efoliolate and subequal in size, none of its glabrous anthers consist of an enlarged connective and reduced locules, and the stamens opposite the anterior-lateral sepals often have the longest filaments. It differs in its leaves, which have a glandular margin, especially noticeable in young or small leaves, and in its inflorescences. The flowers (smaller than those of *S. yungasense*) are borne on pedicels that usually exceed the peduncles and are arranged most commonly in corymbs or pseudoracemes. Characteristically, the lowermost two flowers of an aggregate are separated on the axis a short distance from the others. The leaf margins of *S. yungasense* are eglandular. The pedicels are usually shorter than the peduncles, and the flowers are always borne in umbels (none is separated from the cluster).

Stigmaphyllon yungasense may also be confused with *S. florosum* C. Anderson, which does occur in the Yungas region. Its styles are also efoliolate, but the posterior ones have a narrow, lateral lip. The anthers are pubescent, and the stamens opposite the lateral sepals bear an enlarged connective and reduced locules. The leaf margins are beset with filiform glands and also with scattered sessile glands. *Stigmaphyllon florosum* has not been recorded above 1120 m.

ACKNOWLEDGMENTS

I thank the curators of the herbaria cited for the loans of specimens. Karin Douthit drew the illustrations. My study of *Stigmaphyllon* has been supported by a grant from the National Science Foundation to the University of Michigan (DEB–8215276).

LITERATURE CITED

Niedenzu, F. 1928. Malpighiaceae. In *Das Pflanzenreich,* ed. A. Engler, IV. 141: 1–870. Leipzig: Wilhelm Engelmann.